

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-3 and 5-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 has been amended to limit a slurry delivery device and a fluid restraining device, and a head positioned between the fluid delivery device and a wafer carrier. It is noted that “the fluid delivery device” lacks antecedent basis, as only a slurry delivery device has been previously claimed, and it is not clear that the fluid delivery device and slurry delivery device are the same structures. The scope of the claim cannot be readily determined.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5-15 and 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiwara et al, 6,887,132 in view of Cothrell et al, 4,525,955. ‘132 discloses an apparatus for use in a chemical mechanical planarization (CMP) system, comprising; a polishing pad that is linear (see column 7, lines 67 through column 8, lines 4); a slurry delivery device **124** positioned upstream to deliver a slurry onto the polishing

pad, a fluid restraining device **125** positioned upstream from the slurry delivery, the fluid restraining device being positioned in close proximity to the polishing pad so as to define a level distribution of the slurry across a width of the polishing pad; an input device and a movable output device (see column 12, lines 35-63) capable of being positioned at a proximate location that is spaced apart and over a polishing pad between the slurry delivery device and a wafer carrier, the input being for delivery capable of delivering a fluid such as water at the proximate location and onto the surface of a polishing pad; and the output for removing material such as used slurry from the pad to effect the planarization of the work piece and being oriented adjacent to the input and separated by a gap, the output capable of removing at least part of the slurry delivered onto the surface of the polishing pad. '132 does not disclose that the input and output are in a head, or that a plurality of heads span the width of the linear pad. In a similar device, '955 teaches providing a fluid input and a fluid output (vacuum) within a head positioned over a linear polishing pad. Because both references teach providing an input and output, it would have been obvious to one skilled in the art to substitute one system for supplying and removing fluid with the other, for the predictable result of simplifying the number of structures in the polishing apparatus since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

5. Further, '132 does not disclose that the head may contain a plurality of additional inputs and outputs. It would have been obvious to one having ordinary skill in the art at

the time the invention was made to have provided '132 with any number of desired inputs and outputs, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). Here, there is no evidence that the use of a plurality of inputs and outputs would yield any unpredictable result.

6. '132 discloses placing the input and output over the polishing pad, but does not disclose the proximate location is between about 0.1 mm and about 1 mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have placed the input and output where desired, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Here, there is no evidence of criticality to the range of locations claimed.

7. '132 does not disclose the input is formed by one of milling, drilling, boring, and casting. This limitation is considered a product-by-process limitation. MPEP 2113 states in part: "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)" Here, one of ordinary skill would recognize that milling, drilling, boring and casting are common manufacturing processes to make any type of opening in a structure.

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8. Claims 12-15, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiwara et al, 6,887,132 in view of Cothrell et al, 4,525,955 as applied to claims 1 and 35 above, and further in view of Pant, et al, 5,762,536. '132 as modified by '955 does not disclose a computer, the computer in communication with a sensor, the sensor capable of detecting material properties of a substrate including film thickness, conductivity, surface roughness and topography height variations; the computer capable of providing control over operation of the head, or the sensor being an inductive sensor. '536, in a similar device, teaches an apparatus including an inductive sensor, a computer, the computer in communication with the inductive sensor, the sensor capable of detecting topography height variations, (in changes in the gap between the platen and linear pad), the computer capable of providing control over the operation of the head. It would have been obvious to one of ordinary skill in the art to have provided '132 as modified by '955 with the inductive sensor, and computer as taught by '536, column 5, lines 12-60, to accurately control the overall polishing process.

Response to Arguments

9. Applicant's arguments with respect to claims 1-3, 5-15 and 35-42 have been considered but are moot in view of the new ground(s) of rejection. Applicant has overcome the previous rejection under 35 USC 103.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maurina Rachuba whose telephone number is 571 272 4493. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 571 272 4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. Rachuba/
Primary Examiner
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